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Hepburn and Peterson's Pan.

We herewith give a representation of Hepburn & Peterson's Pan Amalgamator. The object of the inventors of this amalgamating pan has been to devise some means to obviate the inconveniences frequently met with in other pans, arising from a tendency of the sands to pack when in certain condition, making it necessary to stop the running of the machine. Another desirable object was the production of a pan which would economize power and admit of the working of the sands in a more compact state, whereby the reduction is made to progress more rapidly, and amalgamation brought to a greater degree of perfection. Also, to produce a machine that would do a greater amount of work and be more simple, and therefore, more serviceable than those heretofore in use.

These objects, Messrs. Hepburn & Peterson claim to have effected, in an important degree, by the peculiar construction of the bottom of their pan, which, as will be observed by the annexed illustration, is inclined towards the centre, or shaped like an inverted cone—the dies being affixed to this cone-shaped surface, and the mullers made to correspond.—The pulp being thrown into the pan, and the mullers set in motion, their action is such as to throw that portion of the pulp which finds its way between the grinding surfaces to the circumference, whence, by gravitation, it descends to the centre, and thence again beneath the mullers. A constant and active current is thus established, which cannot be done by the same motion when set in operation on a level surface. It will thus be seen that all necessity for wings or scrapers is obviated, which are oftentimes a hindrance to starting the pan after it has become packed from stopping, especially when it is charged with coarse sands, but slightly advanced towards a pulpy consistency. There are no conditions, in ordinary working, where this pan may not readily be started without removing or thinning down the pulp, by simply elevating the mullers a trifle by a convenient screw, as shown.

HEPBURN & PETERSON'S PAN.

The Gould & Curry, and other mining companies of Nevada and California, have expended millions of dollars in experimenting on different amalgamators. They have used and abandoned the Bartola, Freiburg, Veatch, and many others, and adopted the Hepburn & Peterson Pan, as the best now in use. This fact is attested by their general adoption and preference at all the principal Reduction Works in Nevada Territory, and many of the principal mills in California and Mexico.

Messrs. Morey & Sperry are the manfacturers and agents, at No. 95 Liberty Street, New York.

Important Geological Discovery in California.

The State Geological Survey of California has recently made a discovery that will attract attention all over the world and that will become a notable fact in the history of geology. Every person of intelligence is supposed to know that the age of the earth, according to the unanimous opinion of geologists is not less than a million of years; that there have been successive epochs of animal and vegetable life, the remains of which are found deep in the rocks; that the animal and plants of the earlier epochs differ from those now living on the earth; and that, until very lately, nothing has been found to show that man lived on our globe before the beginning of the present geological era. A few years since however, some human bones were found in England and France, showing that men lived in those lands in a former epoch, cotemporaneously with the hyena, rhinoceros, the elephant and numerous other animals which disappeared from Europe long before the beginning of our historical records. The discovery made a great sensation in the learned world, and was the basis of Lyell's great book on "The Antiquity of Mankind." The ancient human bones of Europe were found in the formation known as the lias; but now a human skull had been found in California in the pleiocene, a much older formation. This skull is, therefore, the remnant not only of the oldest known pioneer of this State, but the oldest known human being.

An account of the discovery was given last evening in the California Academy of Natural Sciences, by Professor Whitney. The skull was found in a shaft 150 feet deep, two miles from Angel's in Calaveras Co., by a miner named James Matson, who gave it to Mr. Scribner, a merchant, and he gave it to Dr. Jones, who sent it to the State Geological Survey. Professor Whitney went to the place, examined it, questioned the persons who had had the skull in their possession, and he is entirely satisfied that it was found in the shaft as represented. There is some water now in the snaft, but it is soon to be taken out, and then the Professor will resume his examinations. The shaft passes through five beds of lava and volcanic tufa, and four deposits of auriferous gravel. The upper bed of tufa is homogeneous and without any crack through which the skull could have been introduced from above. The published volume of the State Survey on the Geology of California states that man existed here cotemporaneously with the mastodan, but this fossil proves that he was here before the time in which the mastodan was known to exist. Prof. Whitney has divided the animal paleontology of the State into two epochs—the pleiocene or the epoch before the great volcanic eruptions which covered a large part of the State, and the post pleiocene, or the epoch after the eruptions. Most of the prominent aminals the fossils of which have been found here such as the mastodan, elephant, horse and buffalo have not been encountered in the post-pleiocene, and all the vegetables so far met there are of species not now living in the State. We can now say unqualifiedly that man lived in California before Shasta and Mount Lassen and the Dowieville Buttes, and the numerous volcanic peaks of the Sierra raised their heads to the clouds; before the era of the glaciers, which came after the volcanoes, and swept down the mountain sides in immense rivers of ice; before the great canons were worn on the western slope of the Seirra Nevada, and when the rivers were still running on what are now the tops of the mountains. Casts of the skull, which is not entire, will be sent to the principal ethnologists of Europe and the Atlantic States, with requests for their opinion of it. The facial angle is very similar to that of a Digger Indian of the present day.

It is scarcely necessary to say that the announcement and the remarks o Prof. Whitney made a profound sensation in the Academy.—*San Francisco Alta.*

SELF-ACTING CLOCK.—A novel appl cation of electro-magnetism as a motive power for clock work has just been perfected by a working jeweller at Lexington, which promises to introduce a new era in the science of clock-making and to bring modern time pieces to a state of absolute perfection. By the new arrangements the pendulum, the bob or ball of which consists of an electro-magnetic coil, is made to oscillate by means of a feeble current of electricity, beating true seconds, with a train of three wheels only. One of the advantages of this system is, that a number of clocks in different parts, or even in different houses, can be connected together by a single wire, and the whole number will indicate the same time to a second. The clocks are of the simplest construction, and never need winding up. No acid battery is used.

On National Standards for Gas Measurement and Gas-Meters.

By George Glover, Esq.,

Formerly Lecturer on Natural Philosophy, Royal College of Surgeons, Edinburgh, and Vice-President Royal Scottish Society of Arts, and Superintending Medical Inspector General Board of Health, Whitehall.

From the London Journal of the Society of Arts, No. 424.

[CONTINUED.]

The national standard gas-holders were made at the works of Messrs. Bryan, Donkin & Co., whose well known accuracy in workmanship, and perfect machinery for drawing truly cylindrical tubes of large size, recommended them for such an undertaking. They were constructed under my direction and constant superintendence. In constructing the instruments, the various properties of gas I have just named had to de taken into account, and the following conditions were laid down as essential:

1. That they should be composed of a non-corrodible metal, capable of resisting the chemical action of the constituents of coal-gas and water.

2. That the surface of the bell should readily part with water.

3. That the bell, or measuring part of the instrument, should be a truly cylindrical vessel, and sufficiently rigid to resist change of form from the application of any ordinary forces.

4. That it should have a correct scale engraved upon it to indicate its capacity in cubic feet, and the subdivisions of the feet into minute fractional parts.

5. That it should be correctly balanced, and that a part of the counterpoise, suspended by a cord passing over a spiral, should preserve its equipoise at various depths of its immersion in the water in the cistern.

6. That the sides of the bell should be maintained vertical in its ascent and decent.

7. That the taps be lined with the anti corrosive alloy, and the density of their surfaces be so varied as to reduce their friction to a minimum, and secure their durability and soundness.

8. That the diffierent parts of the instrument should be so perfectly adapted to each other, that, when put together as a whole, it should work easily, steadily, and correctly.

The standards having been constructed, the next point of difficulty was the application of the cubic foot bottle in graduating them. Their graduation involved nice scientific considerations, and a series of experiments requring much delicacy and care. I may here state, that in the graduation and experimental adjustment of the standard gas-holders, I recieved most valuable assistance from Mr. William Græme Tompkins, C. E., who was afterwards employed at the Exchequer in the application of the standards in the verification of the gas-holders for testing meters furnished to the local authorities, and in this his engineering knowledge and experience in the manufacture and use of instruments of precision was of great service. Though the cubic foot bottle already described was accurately adjusted for containing the "legal standard and unit of measure," there was no method known by which it could be used in measuring gas, or in the graduation of holders. An instrument called a "transferrer" was resorted to. It consisted of an upper chamber, containing exactly the volume of one cubic foot, and adapted, with proper arrangement of cocks and pipes, by repeated discharges of the water filling the upper chamber into the lower chamber, to discharge in succession any number of volumes of air, each of one cubic foot, into any vessel properly prepared for their reception. It was open to serious objections. The filling of the bottle produced agitation of the water, displacing air from the water, and entangling variable quantities of it in minute bubbles, many of which adhered to the inner surface of the bottle. Every means which suggested itself was tried to make it available, but these giving no satisfactory result, it was laid aside. Analogous methods were tried of transferring the exact cubic foot to the gas-holder, but with hardly more success. A closer approximation in some instances was obtained, but the uniformity was not such as to justify their adoption in the division of the scale. At last it occurred to me that, instead of using the bottle indirectly, it might be used directly, the second vessel being dispensed with.

1. The bottle was inverted.

2. The plug was drawn out.

3. The openings caused by the withdrawal of the plug were closed with glass.

4. A piece of leaden tube was soldered to the end of the tap.

5. This tube was connected with the gas-holder to be tested.

6. A cistern containing distilled water was placed below the bottle thus secured in a fixed vertical position.

7. The cistern was raised steadily, without the water being agitated, through the whole length of the bottle, until the water reached the point where the plug of the tap, had it been retained, would have stopped it, and the entire volume of air, viz: one cubic foot, defined by the contents of this bottle, was found to have been transferred to the gas-holder.

By this method, simple and direct, the various errors occasioned by the complicated character of the "indirect transferrer" are at once avoided. Tested by numerous experiments, the results of this method have been invariably satisfactory, and it has removed a difficulty long felt by meter makers in the graduation of their holders for testing meters. In his letters to the Lords Commissioners, from which I have already quoted, the Astronomer Royal, referring to it says: "The volume of air defined by the contents of the cubic foot bottle was forced into the gas measurer, under trial by a process invented and introduced by Mr. Geo. Glover, in which the nearly undisturbed surface of water is carried gradually through the entire length of the bottle without risk of absorbing or giving out air. For the one-foot gas measurer this operation, in strictness, was required only once, (but as a cautionary step, it was repeated several times.) For the ten-feet measure it was necessarily to be done ten times. The result of the examination was that the five-feet measurer exhibited no trace of error; that the ten-feet measurer appeared to show an error of about 1-3000th part, which appeared to be undoubtedly due to a little change of temperature; and that the one-foot measurer, which is extremely sensitive to such changes, apparently exhibited errors, sometimes + 1-500th, sometimes —1-500th. Regarding these indications as merely illusory, I do not doubt that the gas measurers are as accurate as it is possible for human skill to make them, and I therefore report them as being, to all intents and purposes, perfect."

The experience of five years, I am happy to say, has only confirmed this testimony.

In verifying holders, and in testing meters, thermom- of a peculiar construction, are used with elongated bulbs by which sufficient delicacy of indication is insured, whether of the testing room, the standard bell, the outlet of the standard bell, or the outlet of the instrument being tested. On one side of the thermometer is a scale for temperature, on the other a scale for corrections rendered necessary by variations of temperature and moisture in the gas. The scale is calculated from the tables of temperature and moisture kept at Greenwich Observatory during a period of twelve years, and Mr. Glaisher kindly assisted in rendering these instruments more perfect, and in carefully comparing them, throughout the whole scales, with the standard thermometer at the Observatory.

Thermometers in general use vary to a large extent, not only from each other, but from themselves, in different parts of the scale. Gas, as you know, expands about 1-4 per cent. from temperature and moisture for every degree of Fahrenheit's scale, *i. e.*, in round numbers, about 5 per cent. for 20 degrees. Gas coming out of the ground at the temperature of 40° would increase 5 per cent. in this room if the temperature were 60°.

In fixing a unit of measure, and providing standards of measure of the highest attainable accuracy, "Sales of Gas Act" has rendered a great and valuable service. And here I am reminded of the language employed by the famous Laplace, when speaking of national standards for weights and measures generally: "We cannot reflect on the prodigious number of measures in use not only among different nations, but even in the same country, their capricious and inconvenient divisions, the difficulties of determining and comparing them, the embarassments and frauds they occasion in commerce, without regarding, as one of the greatest benefits, the improvements of science and the ordinances of civil government can render to mankind, the adoption of a system of measures, of which the divisions being uniform may be easily derived in calculations, and which may be derived in a manner the least arbitrary from the fundamental magnitude indicated by itself. A nation that would introduce such a system, would unite to the advantage of reaping the first fruits of the improvement the pleasure of seeing its example followed by other countries, of which it would thus become the benefactor."

And so, in the present instance, we are already reaping the fruits of the "Sales of Gas Act." A great advance towards correct measurment has been effected. The inaccuracy of the meters in general use hitherto has been fully established. The companies and the community can now be protected. So far the Legislature has done its duty. Lord Redesdale's Act carried legislation as far as the present state of our information justified, and it avoided the grave error of going beyond it. The prudent and wise course for the government to pursue is clear. It is at once its duty and its interest to protect, encourage, and give every facility to a manufacture now so intimately connected as gas is with the public welfare.

And here I may remark, in passing, that the clamor now being raised against gas manufactories being conducted in the heart of our cities and towns is unreasonable. It has gained strength from the recent explosion of a gas holder not far off, a circumstnce which has excited needless apprehensions. No occurence could be more exceptional. I believe it is without precedent, and it arose from a circumstance which might easily have been prevented. When in 1854–55, I had the honor to be instructed by Sir Benjamin Hall (now Lord Llanover) to examine and report on the gas-works of the metropolis, for his guidance, with reference to "Nuisances Removal Act," I reported that gas-works could be conducted without being a nuisance or injuring the public health. Legally to constitute a nuisance three things must be established: A noxious element in sufficient quantity; that element in sufficient intensity and in continuous action; and gas-works were not declared such a nuisance. To science in fact, not to legislation, must the public look for the removal or mitigation of any evil or danger which they may occasion.

But to return. The government having done its duty, it should be the endeavor, as it is the interest, of meter manufacturers to produce meters such as will satisfy the just demands of the public. The work of reform in the measurement of gas which emanated from the legislature must be carried on systematically and earnestly throughout the community. Neither party interests nor party prejudices can be permitted to obstruct the public weal. Old monopolies here, as in other kinds of manufacture, injurious in the first instance to the public, and eventually to the monopolists themselves, must be considered among things that were, and the principle of free and unrestricted competition—"a fair field and no favor,"—as the only principle which can secure the benefits the "Sales of Gas Act," was meant to yield. Mere slop work, the bane of every other kind of manufacture, must be done away with in this. Slovenly workmanship, bad materials, "rough and ready," "finger and thumb" adjustment, whether of the wet or the dry meter, must give place to careful execution, suitable materials, and correct mechanical adaptations.

In respect to the wet meter, the following points may be considered as clearly established: That, with the introduction of water, the proverbial instability of water is introduced; that the level of the water is disturbed by the pressure of the gas constantly varying; that the use of the wet meter exposes the companies to severe loss, and those who use them to annoyances and dangers from which dry meters are comparatively ex-

empted; that corrosion from the action of the constituents of coal-gas and water is actively at work, and fatal to their durability, Of late it has become customary to make cases of cast iron, to conceal the corrosion, without reference to what is going on internally, and by repeated coatings of green paint, to convey the idea of soundness, an idea which is simply delusive. Mr. Hawksley, whose knowledge and experience on every subject connected with gas entitles his testimony to much weight, stated before a committee of the House of Lords that, in 1864, in the Nottingham gas-works, 330,000,000 of cubic feet of gas had been made, and that 50,000,000 of cubic feet of that quantity had not been paid for.

No doubt he attributed a considerable portion of this loss to over consumption in the street lamps, and to leakage. The public will be astonished when told that, even at present, most companies acknowledge that, of the whole gas manufactured by them, from 15 to 20 per cent. is lost or unpaid for, a loss which is usually ascribed to leakage. Most gas companies, as a rule, have no correct method of ascertaining the exact amount of loss; but whenever the question is carefully gone into, and accurate methods of measurement applied, the loss out of profits is found to be from 20 to 25 per cent., and, in some instances even more. About 15 per cent. of this loss may fairly be put down to defective meters. The tenacity with which many companies have clung to the wet meter, and their efforts to maintain it, have been in no small measure owing to the want of a suitable substitute, and the failures which, with one exception, have marked the history of the dry meter manufacture. These failures may be traced to one or other of the following sources: The inadequate scientific knowledge of the manufacturers themselves; the complexity of the conditions the manufacture involves; the error of adopting angular movements in the measuring chambers instead of direct action; the use of rotary valves; the difficulty of arriving at the combination of metals in such definite ratios as to constitute a true alloy, the uniform density and structure of which shall be such that, when manufactured into a D slide valve, the rubbing surfaces shall wear equally, and the perfect soundness of the valve shall be maintained.

To be continued.

Compasses in Iron Ships.

It is a well known fact that all the methods for preventing the deviation of compasses in iron ships are more or less unsatisfctory. The latst scheme in the field is that proposed by Mr. Evan Hopkins, which was first brought before the public, in a somewhat imperfect form, however, in the spring of the present year. The principal cause of the deviation in iron ships is known to be the polarity which the hull acquires whilst being built. It becomes, in fact, a large bar magnet, the magnetism being induced by the action of the earth, and rendered permanent by the hammering which the hull recieves during building. In order to get rid of this polarity, Mr. Hopkins proposes to prepare powerful electro-magnets, which are to be swung from the bulwarks, and slidden rapidly along the plates towards the stern, the magnet being lowered at every repetition of the traverse motion, so as to pass over and depolarize a fresh line of plates. It will be seen that the process is nothing more than an adaptation on a large scale of the ordinary method of demagnetizing a magnetic bar. Mr. Hopkins has taken ont a patent for his invention, but the details, filed a few days back, do not appear to give much promise of success. The idea is however, a bold one.—*Builder.*

Artificial Ivory.—Finely pulverized sulphate of baryta is mixed with gelatine or albumen, compressed into sheets dried, and polished; these sheets are ready for use for photographic and other purposes in the same way as ivory plates.

—The Buena Vista Coal Oil Company of California, advertise that they are now prepared to manufacture 3,000 gallons per month of this fluid, besides a large amount of lubricating oil. They report the supply to be, apparently, inexhaustible.

The Process of Roasting Ores.

Translated from the German of F Plattner, for the Mining & Pelroteum Standard and Am. Gas-Light Journal, by

J. H. TIEMANN.

NUMBER III.

On the other hand, if the height of the roasting chamber, or the size of the chimney, be not in conformity with the other dimensions of the furnace, the roasting as far as the required object is concerned, is very difficult, or even altogether impossible. If for instance, the arch is too high above the hearth, and the flue too large in comparison with the roasting surface, and the openings for the admission of the air are too wide, the admission of air, which always enters with a certain velocity, will be too great; it not only causes a cooling of the flame and of the ore near the working door, but helps also to dissipate the warmth already contained in the chamber, so that when the proper temperature is required, in the absence of a damper in the chimney, more fuel is necessary, and even necessitates perhaps the enlargement of the roasting surface. If, on the contrary, the arch is too low, that is, too near the hearth, or the flue too small, the flame comes in too close contact with the ore, consequently the atmospheric air, when admitted in the same quantities as in a furnace where the arch is higher, gives off too little oxygen for the oxidation of the sulphur and arsenic metals in the ore. Thus not only is the roasting retarded, but the result of the roasting is not such as desired. But when all the parts of the furnace bear a proper proportion to one another, and if according to the nature of the fuel, the size of the hearth and the openings for the admission of air, bears a proper proportion to the size of the roasting surface, the roasting may be carried on with the least possible waste of fuel.

In all these cases however the gases which pass from the roasting chamber into the atmosphere, consist chiefly of undecomposed atmospheric air, because the circumstances are not such as make it possible to deprive the air which enters the chamber, of its oxygen, in greater quantities than actually happens; for only that portion of it gives up its oxygen, which comes in immediate contact with such bodies, which in a glowing state or heated to a certain grade, are inclined to absorb oxygen. The action is the same here as in the burning of the combustible gases when a common candle is lighted, where the air flows towards it from all sides and yet only that portion gives up its oxygen, which comes in immediate contact with the hydrogen and carbon of the heated ascending gases.

If in the place of a solid flame-giving fuel, a gaseous fuel is used, for instance a mixture of carbonic oxyd with carburetted hydrogen (including the nitrous oxyd of the air) when the air, at a proper temperature and in proper proportions, comes together in the roasting chamber, with the gases from the generator, a less extensive flame than in common roasting, is formed because more atmospheric air has been already absorbed for the combustion of the carbon. So that consequently the gaseous combustible products which enter with the visible flame, are present, not only in larger quantities but are also hotter.

Less air being therefore required to pass through the openings into the roasting chamber, to obtain the same objects in a furnace with ordinary fuel, the arch may be somewhat lower.

In regard to the amount of oxygen extracted from the atmospheric air which enters the furnace, the same general rules are applicable as have been given for furnaces heated with solid flammable fuel.

Roasting furnaces which are constructed to economize fuel, whether heated by solid or gaseous fuel, are applicable to roastings where perceptible loss of metal by volatilization is not to be feared, or where the condensible volatile substances, notwithstanding the heated gaseous combustible products and a corsiderable draught in the furnace, may be collected in special condensers. In roasting however where at certain periods it is necessary to change the temperature, such furnaces are best adapted which are constructed for solid flammable fuel.

Besides the condition, that during the roasting process of sulphur and arsenic metals in a roasting furnace, sufficient air must be admitted for oxidation, it is also necessary that the position of each individual grain of the ore or product should be changed during the oxidizing process. The chemical composition of the substance must be taken into account, and how it comports itself upon being heated in combination with atmospheric air, and whether it is better that the heat should be applied directly in an ordinary roasting furnace by the ignited gaseous combustible products, or whether it should be heated from the hearth of a muffel furnace. It is well known that many ores or mill-products containing easily fusible sulphur metals, upon being heated and atmospheric air admitted, sinter easily when the individual particles are not disturbed in their positions, as the sulphrets of antimony, lead, copper, etc., while others are less inclined so to do, as the sulphurets of iron and zinc. When the heat necessary for roasting is produced directly by the heated combustible products of the fuel, the temperature is easily regulated and kept at the desired point for the proper roasting of the substance in hand. When the ore or mill-product to be roasted, is inclined to sinter, it is stirred by means of the roasting-rake, the hot surface ore mixed with the under portions, in this way gradually disseminating the heat through the whole minture, the part lying nearest the fire, by means of the roasting-shovel, is brought to the opposite side, and vice-versa, that nearest the flue brought next the fire, in this manner keeping the whole body of the ore at such a temperature as will best obtain the desired result and which is best applicable to the ore in hand.

A Kerosene Telegraph.

An apparatus termed a "koreosene telegraph," has been invented in Boston. It consists of two small boxes, arranged with levers, for opening and closing the apparatus, of an inch and a half in diameter. An ordinary kerosene lamp was placed in each box with a reflector behind it. One of these machines was taken by Mr. Cyrus A. George (also connected with the office), to a point in East Cambridge, a mile and a half distant from the City Hall, and at half-past eight o'clock, the time previously agreed upon, his signals were received by his brother, who was stationed in the Fire Alarm Office, in the cupalo of the City Hall. He answered them, and they continued to converse with great ease and rapidity for an hour, sending and receiving messages. They found no difficulty in reading as accurately, and nearly as fast as by the ordinary means of telegraphing. With this apparatus, the inventor believes that he could operate easily five miles in clear weather, and by increasing the power of the light, ten or fifteen miles. An experiment will soon be made from the Boston office with some distant point in Roxbury or Dorchester.—*Ex.*

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Telegraphing by the aid of light is not new. The term telegraph is derived from the Greek words signifying "a far off," and "I write." The name was originally given to a mechanical contrivance for the rapid communication of intelligence by signals. Later, the term *sermaphore*, also from the Greek, literally, "sign," "I hear," was introduced by the French, and frequently adopted by English writers.

The art of conveying intelligence by signals has been practiced since the earliest ages, and was known to the rudest savages of all countries. The first description of a telegraph universally applicable was given by Dr. Hooke, in the Philosophical Transactions for 1684. He proposed to use differently shaped figures formed of deal or board by day to represent the different letters of the alphabet, and a *screen* alternately; and he proposed to use *torches* or *light* combined in different arrangements to supply their place by night. About twenty years later Amontons exhibited some experiments before the Royal family of France, and the members of the Academy of Sciences, by which the practicability of the art was demonstrated, and in 1794, we find it was used to convey intelligence to the French armies.

We used a system of signals during the late rebellion wherein a light of some kind and a screen interposed alternately, produced signals that were readily interpreted at a distance; and the system of rockets and signal lights are well known, both on land and for marine service.

Our light-houses are a species of telegraph, and speak a language the storm-tossed mariner can well understand and appreciate. Who is there that has not seen the *lantern telegraph* of the railroad, as the switchman signals to the conductor or engineer, "all right," "go on," &c.; or the language of the conductor, as he swings and dances his lantern for the engineer to "stop," to "go on," "time up," "wait," and the like. And is there not another sort of night telegraph by light, and kerosene at that, (since petroleum lamps have crowded out the tallow dip), "the light at the window," which every school girl has practised to convey the happy intelligence to her lover, that "Pa" is out, and "Ma" is busy, and that the parlor fire is burning to waste, while "somebody is waiting for somebody."

Extracting the Precious Metals by means of Sodium Amalgam.

The following is a brief abstract of an article which has recently appeared in the English journals giving facts relating to the new use of sodium in amalgamation in which mining men are now taking so profound an interest. Much is omitted, as having been already given in substance in the different publication of this new method, by Prof. Henry Wurtz:

"The extraction of gold by amalgamation, has been attended hitherto with serious difficulties, owing to the presence in the ore of sulphurets, arsenic, antimony, bismuth, or tellurium compounds, which coat the gold with a film or tarnish, so that the mercury cannot touch it. Thirty to eighty per cent., or more, of the gold escapes the action of the mercury, being lost in the "tailings," while large quantities of the mercury are also carried off in the washings.

At the St. John del Rey mine the loss of gold is	30 per ct.
In the Brazils generally	30 to 35 "
In Piedmont	35 "
At Zell	35 to 40 "
In Hungary and the Tyrol	50 "
In Chili	66 "

In many cases the waste of mercury is even more serious than that of gold.

All these sources of loss are said to be avoided by dissolving a little sodium amalgam in the mercury before it is introduced into the amalgamating vessels.

The best proportion of amalgam to the mercury must be found out by experiment, as nearly every kind of ore will require a different treatment; but considerable latitude is permitted, and the addition of a little too much does not appear to do harm.

If the mercury retain its fluidity and brightness to the end of the operation, it is a sign that either sufficient or too much has been added, and a second experiment should be tried with the addition of a diminished quantity of amalgam.

The following experiments may be made to show the special action of sodium amalgam upon "floured and sick" mercury, and upon gold and silver ores:

1. Take a piece of dry chloride of silver and put it into a watch glass or small dish. Cover it with water, and put a globule of mercury of about its own bulk in contact with it. The two may be rubbed together for hours without any apparent change taking place, but if a piece of either of the amalgams be dropped into the mercury, the latter will seize hold at once upon the chloride of silver, and in a few minutes will appear to have eaten its way through, reducing it to the metallic state, and at the same time amalgamating with the silver.

2. Take about five grains of pure mercury and put it into a small dish or a watch glass. Pour over it a few drops of solution of perchloride or persulphate of iron. This will "sicken" the mercury readily, especially if it be moved about with the finger. When thoroughly "sick" drop into it a piece of amalgam, about one-hundredth part the size of the mercury. Instantly, as if by magic, the "sick" mercury recovers, and assumes its globular form.

3. Sicken another globule of mercury in the same manner; pour on to it the recovered mercury from the former experiment (No. 2), and it will be seen to cure the second portion also.

4. Thoroughly flour or powder a dozen grains of mercury by violently shaking them in a bottle with weak gum water, and a few drops of perchoride of iron. Pour off the liquid and wash once or twice. Now transfer the powdered mercury to a dish, and put into it a few grains of amalgam, and gently rub them together under water. In a few minutes the whole of mercury will be reduced to the bright metallic state. Mercury "floured" and "sickened" with grease will be brought back to the active state with the same readiness.

5. Take two portions of pure mercury (about 100 grains each); pour water over them, and put ten grains of amalgam into one of them. Now take a piece of gold ore, containing visible gold in it, and dip it into the common mercury. Scarcely any or no action will take place. Then dip the same piece into the amalgamated mercury, and the latter will instantly unite with the gold and whiten it. A gold coin dipped into common mercury will seldom be acted upon except in a few spots, but when dipped into the amalgamated mercury it is instantly wetted by the metal all over its whole surface. The same experiment may be performed with a silver coin and a piece of gilt paper.

6. Take some iron pyrites and mix with it any of the ores which are most antagonistic to amalgamation by the ordinary process, such a sarsenic or tellurium ore. (If these cannot be got they may be left out.) Grind up one hundred grains of this mixture with five grains of pure mercury and a very little water for about two minutes, and then wash away the pyrites and examine the state of the mercury which is left behind. Nearly all will be washed away. And what is left will be in the form of a dull-looking powder or flour.

7. Now repeat the same experiment after having added to the mercury a small piece of amalgam. The mercury will be kept in the bright globular condition during the whole of the experiment, and upon washing away the pyrites the metal will be left behind in one globule and without loss.

If the pyrites or other mineral contain gold, the amalgamated mercury will be found, upon examination, to have absorbed it all, whilst the common mercury will have taken up scarcely any.

In reference to this process Dr. A. W. Hoffmann, F. R. S., says:—"The advantages that must accrue, in a commercial point of view, are, to my mind, undoubted. Through this discovery it will now be possible to obtain a greater percentage of gold than heretofore from any given ore; and as regards the poorer auriferous ores, it will now be possible, by the elimination of these two important sources of loss, to work them also remuneratively.

Dr. Wm. Allen Miller, V. P. R. S., gives an equally favorable opinion of the process.

Dr. Odling, F. R. S., and Mr. Robert Hunt, F. R. S., also, speak favorably of this process.

Some experiments which were made at the gold-bearing districts in Wales, by Mr. Readwin and Mr. Spence, tend to show that even in cases where no gold was obtained by the ordinary process, the sodium process yielded six ounces of gold per ton.

Mr. Thomas Belt, manager of the Prince of Wales Gold and Lead Mine, Dolgelly, who has had considerable experience in gold mining in Nova Scotia, has used the sodium process with great success in extracting gold from galena by amalgamation. The assay of the galena showed that it contained 13 dwts. 16 grains of gold per ton. Amalgamation in the ordinary way with common mercury only extracted 6 dwts. 12 grains of gold per ton, whilst, when the amalgamation was conducted with the addition of a very small quantity of sodium amalgam, the whole of the gold present was recovered, the yield being 13 dwts. 10 grains per ton.

The process has been in use for some time at the gold mines at Clear Creek, Tulare county, California, where the owners report that the quicksilver is rendered remarkably quicker and livelier for absorbing the particles of gold by the immersion of small lumps of sodium. It has also been successfully employed in Mexico, at the works of the Real del Monte y Pachuca Silver Mining Company (one of the largest silver mines in the world), and the St John del Rey Gold Mining Company (Brazils), have also commenced experiments, upon which they report favorably.

Correspondence.

No. 57 Broadway, New-York, Oct. 5, 1866.

Mr. Editor—My communication made to the American Association at Buffalo having appeared in your columns, it has become incumbent upon me to give the substance of some later advices received, which modify to some extent the statements in the said communication, relating to the experiments in progress at the Gould & Curry Mill in Nevada. My previous information was partly at second-hand, but that I now present is direct from head-quarters. It appears the efforts to manufacture sodium at this mill were discontinued; a result easy to be anticipated by one aware of the peculiar difficulties to be encountered in making sodium; difficulties which, as I can readily comprehend, must be so greatly enhanced in a remote mining district that even Mr. Moore's well known chemical skill might not suffice at once to overcome them. Our new and rapidly developing Sodium Works will soon render superfluous such efforts to procure this metal locally on a small scale.

"Gould & Curry Assay Office,
Virginia City, Aug. 14, 1866.

Dear Sir,—Your favor of 10th inst., relative to the experiments on the Sodium Amalgamation process made at the Gould & Curry Mill, was duly received.

The experiments in question were made with sodium prepared for that purpose at the laboratory of the G. & C. Assay Office, before any of the metal could be purchased in California. They were intended to form part of a thorough and systematic inquiry into the merits of the process. But after two experiments had been made, the preparation of the sodium was found to be so troublesome and to interfere so seriously with the current work of the office, that the experiments were discontinued, until the metal could be obtained from other sources. It was also found impracticable to continue the experiments in the pans used for the general mill-work, and it was intended to put up a couple of pans of the largest size, in a room separate from the rest of the mill, for that express purpose. The pans in question have recently been received, and will shortly be put in operation. We have received, through kindness of Prof. Silliman, about 50 lbs. of the *hard* sodium amalgam,* which, with a quantity of the metal itself purchased by the Company, will be employed in the experiments. When the course is complete, I shall be very happy to furnish you with the result, including all of the details of working.

The first of the two experiments to which you allude in your letter was made in the Varney Pan, heated by steam, with no 'chemicals.' The result was highly satisfactory, showing a gain in metal extracted of about 20 per cent. over the ordinary process, while the amount of mercury lost was about the same. The second experiment was made in the Hepburn & Peterson Pan, using no steam or chemicals. The result in this case was unsatisfactory, showing a smaller yield than by the ordinary process.

Very sincerely yours,
Gideon E. Moore."

I have presented the *results* only of Mr. Moore, who is the chemist of the Gould & Curry Co., omitting his deductions; as each practical man will prefer to make his own inferences from the facts. The most important comment I would myself wish to make would be that I should confidently expect, on repetition of the first experiments with the steam-heated Varney apparatus, to better the results still further; on the ground that some *loss of quicksilver* (that is, of pasty and floured silver-amalgam) is implied to have still occurred; whereas I have always found it easy, with a little practice, to recover *all* the floured amalgam from a pulp strictly *without any loss*. I wish also to remark that the results with the Hepburn & Peterson Pan, being merely a *negative* result, cannot be justly regarded as arguing anything but absence of some condition to

success, which would probably be easily discovered by a little further experiment. We expect soon to have result with the Hepburn & Peterson Pan, to present, which will at once remove all doubt as to the value of sodium in this form of apparatus.

Very respectfully yours, etc.,

HENRY WURTZ.

* This package of magnetic amalgam was forwarded from our works at the instance of Prof. Silliman.

H. W.

Messrs. Editors,—It having come to my knowledge that a gas-burner is being introduced into market which resembles the *Thompson Gas Controller* in form only; but not possessing the principle which gives Thompson's patent its special and distinguishing character and value. Parties interested will please observe that Thompson's Controller has both an *air* and *gas* chamber. The air chamber outlet, is on the upper side and covered with a disc of metal having the name and patent plainly stamped upon it.

Yours etc.,

M. L. CALLENDER, Agent.

PATENT CLAIMS.

Pertaining to Gas, Mining, Petroleum, Water, etc.

For the two weeks ending Oct. 2, 1866.

58,213—LAMP BURNER.—George J. Capewell, West Cheshire, Cond.

I claim the toothed holder tube, G, for the wick of a kerosene lamp, in combination with the bent spring, K, or its equivalent, and pinion, I, when arranged together, and with regard to the ordinary wick tube of such lamps, substantially as herein described, and for the purposes specified.

I also claim forming the air-opening, C, to the air chamber of a kereosene or other lamp, as herein described, and shown in the drawings, for the purpose set forth.

58,221—MANUFACTURE OF GAS—Joseph H. Cannelly, Wheeling, W. Virginia.

First, I claim the forcing of the petroleum or its products, viz: residuum and crude benzole, in about equal quantities in conjunction with lime water, into the retort with a jet of steam, when the retort is charged with coal, substantially as described.

Second, Introducing the petroleum or its products, in conjunction with lime water, into the retort when charged with coal, by means of the pipes, F G, provided with seals or traps, substantially as described.

Third, The iron spout, O, attached to the manhead and employed to conduct the liquids back to the center of the retort, substantially as herein set forth, and for the purpose specified.

Fourth, The combination of oil and lime water for desulphurzing and purifying in the manufacture of gas from coal, substantially as described.

Fifth, Also introducing the petroleum or its products in conjunction with lime water into the retort, when charged with coal, by means of the common receiving pipe, E, inserted into the retort at or near the back end either with the coals, traps or steam jet, substantially as described.

58,260—PETROLEUM COOKING AND HEATING APPARATUS.—John S. Hull, Cincinnati, Ohio.

I claim the open inverted conical tube, D, around the burner, C, in combination therewith and with the tubes. E E, arranged and operating substantially as and for the purpose herein specified.

I also claim the succession of open tubes, E E, formed, arranged, and operating substantially as and for the purpose herein set forth.

I also claim the combination of a burner provided with open tubes, D E F, as described, with a cooking or heating apparatus or utensil.

58,261—BURNER FOR VAPOR LAMPS.—John S. Hull, Cincinnati, Ohio.

I claim the forming of the cap, C, internally with an annular recess with channels and grooves, in the manner substantially as herein shown and described, in order to spread the burning material or cause a large volume of the same to be exposed to the flame for the purpose specified.

I further claim the fluted or corrugated plug, e, in combination with annular, serpentine, or circuitous passages in the cap, C, substantially as and for the purpose set forth.

58,321—APPARATUS FOR SUPPLYING GAS ON STEAMBOATS, ETC.—N. Treadwell, New York City.

I claim the stop cocks or valves, a b c d, in combination with the gas supply pipe, D, pump, J, dischaage pipe, G, pipe, C, and gas holder, A, all constructed and operating substahtially as and for the purpose described.

58,335—AMALGAMATOR.—S. Frederick Charles (assignor to himselt and S. E. Russell), Dahlonega, Ga.

First, I claim the so combining a panning machine, a regrinding machine and an amalgamator, that the gold shall be thoroughly extracted by the continuous and connected action of all of them, substantially as set forth.

Second, The adjustable, partition, B, constructed and operate substantially as and for the purposes set forth.

Third, The deep radiating channels, j, in the lower surface of the grinder, K.

Fourth, The combination of an upper revolving grinder with an oscillating lower one, constructed and operating substantially as specified.

Fifth, The case or shell, M, of the grinders in combination with the rollers, i, and the reciprocating arm or lever, O.

Sixth, The amalgamator, R, constructed so as to form one large and one narrow compartment, by the insertion of the removable and adjustable partition, o, substantially as specified.

Seventh, The revolving frame provided with amalgamating pans suspended below the surface of the auriferous mass, constructed and operating substantially as and for the purposes specified.

Eighth, The location of the flue below the series of amalgamators, substantially as and for the purposes specified.

58,379—METHOD OF BURNING OIL FOR FUEL.—Robert A. Cheesebrough, New York City.

I claim, 1st. The use of bone-black as an absorbent bed for oil when the same is used as fuel.

2d. The combination of bone-black and hydro-carbon or other oils for use as fuel.

58,392—LANTERN.—A. M. Duburn, Chicago, Ill.

I claim, 1st. That arrangement of the globe, G, as shown, so that it may rest on spring supports, and be capable of being drawn through the band, C, when desired.

2d. The wick adjusting mechanism composed of the two rods, k, m, fitted respectively in the lamp burner and band, C, and provided with the square, l, and three-sided socket, n, all constructed, combined, and arranged as shown, to admit of the wick being raised and lowered without removing the lamp from the lantern, and at the same time admitting of the removal of the lamp whenever desired.

58,459—LAMP.—Charles Mulchahey, Springfield, Mass.

I claim the application to an oil lamp of an absorbent or retaining material, around outside of the tube, c, substantially in the manner and for the purpose described

58,471—APPARATUS FOR CARBURETTING AIR, ETC.—Andrew Patterson, Birmingham, Pa.

I claim the combination and arrangement of the divisions, c, c, c, within the adjastable inclined pan, a, with their alternate submerged passages, d, d, d, the whole being arranged and applied substantially in the manner and for the purposes set forth.

59,475—STORING PETROLEUM, ETC.—Emmett Quinn, Washington, D. C.

I claim a dock or crib, with its appurtenances, in which to store petroleum or other oils in barrels or casks, constructed and used in a manner substantially as described.

58,481—LAMP.—Karl Riedel, Guttenburg, N. J.

I claim the reservoir, A, having hollow handles, H with suitable absorbent material, D, and non-absorbent material, E, in combination with the guage cylinder, F, constructed, arranged, and operating substantially as described for the purpose specified.

58,512—DOUBLE STILL FOR PETROLEUM.—Peter H. Van der Weyde, Philadelphia, Pa. Ante-dated Sept. 21, 1866.

I claim a double still in which all the defects and objections against other double stills are corrected, in the manner described.

58,553—MANUFACTURE OF ILLUMINATING GAS.—Abolph Millochau, assignor to the American Retort Company, N. Y. City.

I claim, 1st, A separate casing for containing the coal or other material to be distilled, in combination with the main retort within which said casing is introduced, as and for the purposes specified.

2d. The method herein specified of subjecting the products of distillation to a heating operation within the retort in which they are generated, and for the purposes set forth.

NEVADA SALT MINES.—The developments arrived at respecting the salt mines of Nevada are almost startling in amount. A single bed there is computed to cover fifty thousand acres. It is solid rock salt, ninety-five per cent. fine. It now yields at the rate of two millions of bushels per annum. The water rushes up from a distance of about thirty-five feet, and makes a constant deposit of the finest white salt. It is proposed to sink shafts at various points, in hopes of striking some spot where water will not be touched, and where the salt can be quarried, as in Hungary and Poland. Whether this is attained or not, it is settled that Nevada has an abundant available supply for the uses of all the regions lying west of the Mississipi; so accessible and so pure that there will be no need to depend upon foreign production.

ASTRONOMICAL.—The constellation Corona has a star which from its peculiar appearance is called the "burning star." It has attracted unusual attention among astronomers, both in Europe and Ameica. The extraordinary outbursts or changes in its apparent size and condition, leaves but little doubt that is really a burning world.

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J. LAWRENCE SMITH, President.

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CASTINGS FOR

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OF ALL DESCRIPTIONS, INCLUDING

Purifiers, Exhausters, Compensators, Self-Acting Valves, Branches, Bends, &c.

FLOYD'S PATENT

Malleable Iron Retort Lid.

SABATTON'S PATENT

Furnace Door and Frame.

Refers to—J. A. Sabatton, Esq., Engineer Manhattan Gas Co.—Col. A. J. White, Metropolitan Gas Co.—C. C Mowton, Engineer New York Gas Light Co.—J. Mowton Saunders, Engineer Baltimore Gas Co.—John T. Harrison, Engineer Savannah Gas Co.

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SILAS C. HERRING. JAMES R. FLOYD

KEROSENE

Cooking Apparatus.

All the cooking for a family can be done with Kerosene Oil, with less trouble and at less expense than by any other fuel.

Our stoves give no smoke or odor, and are not liable to get out of order, being as simple in every respect as a kerosene lamp. The Baker, Boiler, and Flat-Iron Heater are the only special articles of furniture required. For all other purposes, ordinary stove furniture may be used.

We would call attention to the fact that for the past three years, the Company has devoted itself almost exclusively to the manufacture of Kerosene Cooking Apparatus, and is prepared to guarantee that every article shall perform all that is claimed for it.

Liberal discounts to the trade. Send for circulars and price list.

KEROSENE LAMP HEATER CO.,

206 Pearl Street,

NEW YORK.

THOMAS CASSIDY,

Iron Founder & Pattern Maker

Corner Hudson and Park Avenues,
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Iron Store Fronts put up at short notice.

Square and Round Columns, Truss Girders, Vault Beams, Window Lintels, Sills, &c.

A large assortment of Railing Castings constantly on hand, or made to order, at the shortest notice.

Lamp Posts—Brooklyn Pattern.

☞A large stock of the usual sizes of Round Columns kept on hand.

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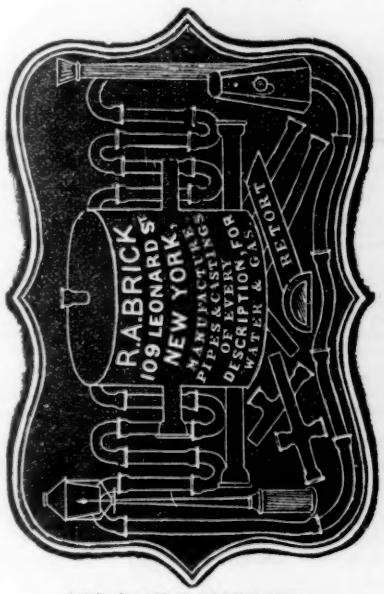

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AND BANDS COMPLETE.

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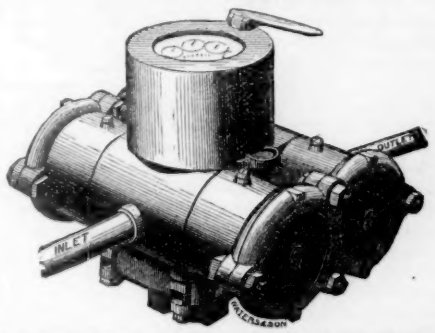

PATENT WATER-METER.

This Meter is also used for the measurement of Oil —it combines

ACCURACY, SIMPLICITY, and REMARKABLE DURABILITY with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON,
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WILCOX & GIBBS' SEWING MACHINE.

It is entirely noiseless. A patented device prevents it being turned backward. The needle cannot be set wrong. It received the gold medal of the American Institute in 1863. Send for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

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Manufacturer, 508 Broadway, New York.

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Mining & Petroleum Standard
AND
AMERICAN GAS-LIGHT JOURNAL.

Published on the 2d and 16th of Each Month

At No. 22 Pine Street, New York.

BRYANT, CALLENDER & CO.,
EDITORS AND PROPRIETORS.

Profs. PARTZ & BUCK Consulting Chemists.

TUESDAY, OCTOBER 16, 1866.

WISHING TO MAKE this Journal an organ of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its colums are devoted, the publishers solicit letters from all among them who make the study of those subjects a pleasure, or a profession.

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Home Mines and Mining—Mineral Resources of Canada, etc.

A quarter of a century hence it will be a matter of astonishment, that the natural wealth of our country should have remained so long undeveloped. With our railways and canals supplementing the great natural facilities for travel and transportation we are scarcely behind the most favored country in this very important particular. And yet, comparatively, how little has been done in availing ourselves of the resources at our disposal. It is true that the importance of our forests is thoroughly appreciated; perhaps too much depended upon for the future interest of the Province. The oil teritory has also rapidly augmented the wealth and stimulated the energies of our people. But the immense mineral riches of Canada are allowed to remain almost untouched. With the exception of some very limited operations in copper on the shores of Lake Superior and in the townships, the Chaudiere gold mining, and the exportation of a few thousand tons of iron ore from Marmora, in the county of Hastings, and from Hull (near Ottawa,) in 1854 and 1858, and since that time from the Newborough mine in South Crosby, almost nothing has been done. Plumbago (native carburet of iron) has been found in Greenville, Hull, Chatham, and at some other points in Eastern Canada, and in Longborough, Bedford and Burgess, in the Laurentian limestones in the rear of Kingston. A gentleman well known in Central Canada has called our attention to the very valuable deposits of this mineral in the township of Buckingham. Plumbago of the quality produced in Canada is said by Sir William Logan to be worth about £20 sterling per ton. The Hull iron mines are again being worked, and this time with a fair prospect of a permanent business. Smelting furnaces are about to be erected on the Gatineau, and from the very superior quality of the ore and other favorable circumstances, their success can scarcely be doubtful. Ores producing from 25 to 30 per cent. of pure magnetic iron are said to yield a profit to the manufacturer, and with ores containing 60 to 80 per cent. (as at Hull) the only requisites are capital and labor honestly employed.

GOLD IN NEW BRUNSWICK.

Grand Falls, Aug. 7.—The discovery of gold at Little River is now the absorbing topic here. A sight of the Grand Falls is nothing compared with a glimpse of the yellow particles at the "diggings." The specimens found are both rich and genuine, and no doubt is entertained that they are only the earnest of a new El Dorado. To day 100 feet of sluice boxes have been sent to the scene of operations.—They are at present confined to washing. The Heavy rains have swollen the river over the bar. Prospects are good. Parties are going up from here to the diggings to-day, and indeed all the time.—Two California miners have been on the spot. One of them, Mr. Kerlin, a resident of the place, states that the washings in one spot are worth from $3 to $4 a day, but no thorough investigation has yet been made.

The above is taken from the Toronto *Globe*, and as it so forcibly illustrates what we have hitherto said in regard to the value of mineral districts on this side of the Continent, we feel a pleasure in quoting so liberally from this valuable journal, and which shows a laudable interest in this subject.

The late discoveries in economically extracting gold from its combinations by the improvements in mining and mining machinery, and the new "Sodium Amalgam" process of Prof. Wurtz, whereby the largest proportion of assay is obtained. These make valuable mines at our doors almost, for it is well known that the "gold belt" of Canada extends in a south-west direction throughout Vermont, Massachusetts into Connecticut, and even into New York, as the late reports of gold mining go to show. Most of the Eastern States from Maine to the Hudson River contain rock which will assay from $10 to $20 per ton, but in the old way only a fraction of this sum could be extracted from the strong sulphurets, arsenates, etc, in which state it is almost invariably found. The gold belt does not exhibit so prominently in New Jersey and Pennsylvania, perhaps; but in Maryland and Virginia it again appears in the general range, which seems to reach even to the Gulf of Mexico, passing through the States of the Carolinas and Georgia, from the last named we are constantly receiving reports of new and profitable mines being opened.

Plastic Slate Roofing.

This new invention is being adopted by mechanics as the best roofing before the public, and will be a most profitable investment for parties who take out Licenses for the business. Licenses for the franchise of States and Counties have been either sub-let by the purchasers in districts upon a liberal royalty to the licensee, or sold at a large advance upon the price paid by the original party. Profits of from $300 to $5,000 have been realized by licensees who lately purchased their franchise.

There cannot be a doubt respecting the capacity of this roofing to resist fire, water, and decay. The tests and experiences of the past five years, made by the patentee, have produced results which assure us that, if properly prepared and put on, it will prove everlasting so far as its own element is concerned.

The first annual meeting of the stockholders of the Plastic Slate Roofing Company was held at the office of the company, No. 147 Broadway, on the 3d and 4th of the present month, and was largely attended both by capitalists and mechanics who had invested in the stock of the company. The returns from licensees gave assurance that great attention has been given to the business, and with success, and the concise and well drawn report of the Treasurer, J. M. Allen, Esq, showed not only good management of the concern by the officers, but an economy in expenditures unusual in such corporations. The present income of the company is quite large, and every day brings increasing proof of progress in the enterprise. The liberal course of the patentee and proprietors in this valuable discovery has been praiseworthy, and their novel plan of individual and mutual interest in the stock of the company has a certainly beneficial effect upon all parties in interest. We copy from Mr. Allen's report the following:

"From the 1st of January to the 1st of October inst., the following table exhibits the run of expenses and revenue for each month, with the monthly and total balances.

Month.	Expenses.	Revenue.	Dr. Bal.
January,	$ 307 55	$ 35 00	$ 272 55
February,	929 69	00 00	929 69
May,	1,172 50	825 05	347 45
	2,409 74	860 05	1,549 69
	2,520 86	3,502 24	981 38
Total Expenditures,	$4,930 50	$4,372 29	$ 568 61
Total Revenue,	4,262 29		
	$ 568 31		

Month.	Expenses.	Revenue.	Cr. Bal.
March,	$ 45 62	$ 70 70	$ 25 08
April,	448 80	456 81	8 01
June,	571 59	634 11	62 52
July,	457 15	924 51	467 36
August,	571 63	575 58	3 95
September,	431 57	846 03	414 46
	$2,520 86	$3,502 24	$ 981 38

The debit balance here shown is offset, in part, by the sum of about $190 due from two millers on their returns for second quarter, which will soon be paid. It was an error in their returns. So that the actual balance is about $378, while the property in the office is worth over $600.

The revenue now due on the third quarter, just ended, is estimated at $1,400. Calling it $1,200, and it shows a balance on the credit side of over $800. We see no reason to suppose the fourth quarter will yield less than the second or third, notwithstanding it includes the inclement month of December, and estimating expenses at $450 per month, we think New-Year's Day may find the comfortable sum of $2,000 in the treasury."

The officers for the ensuing year are:

WM. L. POTTER, President; WM. C. POTTER, Vice President; J. M. ALLEN, Sec'y and Trearurer.

DIRECTORS—J. S. Christie, Wm H. Peck, Jr., Orson Johnson, Edward Van Order, J. M. Allen, W. C. Potter, W. L. Potter.

GEFRORER'S GAS BURNERS AND LAVA TIPS.—We have in our present number a representation of gas burners and lava tips manufactured and imported by Charles Gefrorer, No. 529 Commerce street, Philadelphia. Gefrorer's Gas Burners have a deservedly high reputation for their regularity for consumption and superior finish, and he supplies his goods to gas companies and merchants all over the United States. He has been continually extending his facilities for manufacturing his stock, and is now contemplating much more extensive ones to meet the demands upon him in his business.

Lava tips in metal pillars are being much used, especially where from moisture or other causes, metal tips rust, corrode, or oxidize. Mr. Gefrorer gets them up in good style, and at reasonable prices.

Glycerin.

We present to our readers an advertisement of Messrs. W. J. M. Gordon & Bro., of Cincinnati, who manufacture Glycerin of the best character. Analysis, and that best teacher, experience, has proved the purity of their material. As the cold weather is now approaching, glycerin should be adopted for all wet meters, and we will confidently recommend Messrs. Gordon & Bro, although their well established good reputation does not require it.

ULSTER COUNTY PEAT.—Peat beds in the vicinity of Shadkill pond, in the town of Lloyd, Ulster Co., are being extensively worked. Over 100 men are now busily engaged, and two large storehouses erected, besides a large stone building for pressing and condensing peat. Steam power will be used, and railways built to convey the peat from the beds to the mill. The company, we understand, have already expended $200,000 for labor and machinery.

PEAT APPARATUS.—We have inquiries for apparatus for manufacturing peat for fuel. Especially for spades and instruments adapted to excavating. Those engaged in the manufacture of these articles will do well to have a card in this JOURNAL.

☞ Read the advertisement of "Gothic Furnace," on the following page.

Oregon Enterprise.

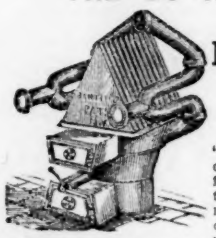
A company styled the Oregon Iron Company has recently been organized, which will have blast furnaces in operation within a few months. The works are to be located on the Willamette, eight miles above Portland. A bed of iron ore has been opened about a mile from the river, and but a few feet below the surface. The deposit of the ore is said to be rich and inexhaustible. There is also a heavy growth of timber to furnish a supply of charcoal, and a small stream of water furnishing sufficient power for the blast and other purposes. An enterprise having such a combination of advantages ought, and no doubt will, be successful It is the first attempt to fill one of the great blanks in the manufactures of this coast These works, if successful, can of course only in part supply the local demand in Oregon, leaving the field open as heretofore in this State, which consumes the bulk of crude iron brought to this coast A furnace of moderate size out to turn ought thirty-five tons per week, and should keep in operation three-fourths of the year, producing, say, 1,300 tons of pig iron annually.—*California Paper.*

We are pleased to learn of the commencement of this enterprise, and more especially because we understand one of its original projectors is our early friend, Mr. Henry D. Green, of Portland, Oregon, formerly of Tompkins County, in this State. Mr. Green, with his brother, John Green, Esq., early located in Oregon, and have identified themselves with the interests of the country extensively and profitably. The firm Leonard & Green erected the first Gas Works in that State at Portland, a flourishing town at the head of navigation on the Williamette river, now containing about ten thousand inhabitants.

It was in operating these gas works that Mr. Henry D. Green conceived an important improvement in the manufacture of illuminating gas, for which he has lately taken out Letters Patent, and which we shall have occasion again to revert to. We confess a more than ordinary interest in that land of lumber and gold—of big salmon and *some* cranberries—of Flathead Indians and their unburied ancestors—of vast forests and majestic mountains, whose snow-capped tops do not quench the volcanic fires within—whose inhabitants are proverbial for their thrift, enterprise and hospitality from the Cascade Mountains to the Clatsop Plains.

CATALOGUE of Scientific, Military, Naval and Miscellaneous BOOKS just published, and sent free on application.

D. VAN NOSTRAND,
PUBLISHER,
163 192 Broadway, New York.

THE GOTHIC FURNACE,
FOR WARMING

HOUSES, STORES,
CHURCHES, &C.

Read the following testimonials.

"In every respect I find it meeting our wants, while it is economical in fuel, being SO SIMPLE OF CONSTRUCTION that it is EASILY CLEANED AND REGULATED. It has one great advantage over others in respect to the water pan; there is room for three pans if desired, while most furnaces have very little room for this MOST IMPORTANT article. I expect to build the coming season, and shall require two more of them. J. EDWARD IRELAND, Mt. Vernon, N. Y."

"After a trial of three years I can safely affirm it to be the most desirable heat generator I have ever seen. G. S. WEAVER, Albany.

"Your furnace has proved an entire success Its heating properties, with the economy of fuel combined, surpass anything of the kind here. I have used it with bituminous as well as anthracite coal. G. CHURCH, Meadeville, Pa."

REFERENCES:

HENRY PALL, of Ball Black & Co; SIMEON LELAND; Rev. Dr. OSGOOD; ALFRED E. BEACH, of Scientific American; Hon GEO. BANCROFT; Judge BULLOCK, U. S. District Court, Rhode Island, and hundreds of others.

Manufactured and for sale by
ALEX. M. LESLEY,
No. 605 Sixth Avenue, New York.

☞ Old furnaces taken out and replaced with the Gothic. A circular sent on request.

WILLIAM TAYLOR & SONS,
COLUMBIAN IRON WORKS,
Nos. 11, 13 & 15 Adams Street, Brooklyn, N. Y.
MANUFACTURERS OF ALL KINDS OF
Castings, Iron Buildings Store Fronts, Columns, Girders and Beams.
Steam Engines, Mill Gearing, Hydraulic Presses for the manufacture of Linseed and Cotton Seed Oils, Sugar Mills, Single and Double Action Pumps, also Steam Pumps, Coal Oil Machinery, High and Low Pressure Boilers, Tanks, Kettles, Soap Curbs, &c.,
MADE AND REPAIRED AT THE SHORTEST NOTICE.
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CASTINGS FOR GAS WORKS FOR SALE.
ONE COMPLETE SET HYDRAULIC MAINS for a bench of seven ovens, including Dip, Bridge, and Stand-pipes and Mouth-pieces for ovens of three retorts. Also, a COMPENSATOR, complete, and one EXHAUSTER, in perfect order, equal to passing Two Hundred and Fifty to Three Hundred Thousand feet of Gas per day. The whole, or separately, for sale low.
Apply at the Office of the
160-tf ALBANY GAS LIGHT COMPANY.

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The plan of this School embraces a three-years' course for the degree of ENGINEER OF MINES, or BACHELOR OF PHILOSOPHY.
For admission, candidates for a degree must pass an examination in Arithmetic, Algebra, Geometry and Plain Trigonometry. Persons not candidates for degrees are admitted without examination, and may pursue any or all of the subjects taught. The next session begins October 1, 1866. The examination for admission will be held on September 28, 29. For further information and for catalogues, apply to
62-65* PROF. C. F. CHANDLER, Dean of the Faculty.

GAS-METER GLYCERIN.
WE SOLICIT THE ATTENTION OF GAS COMPANIES to our GLYCERIN, which is now generally known, and is undoubtedly the best article ever used for filling Gas meters. Glycerin of 15° Beaume will stand 14° below zero without freezing, and the greater the density the lower the temperature it will stand.
We have sold to most of the large companies throughout the country, and annex a few certificates showing its value:

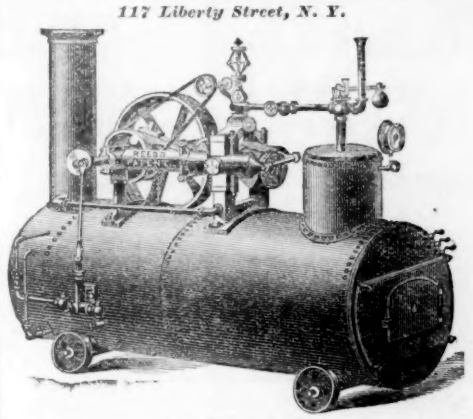
OFFICE OF THE CINCINNATI GAS LIGHT & COKE CO., CINCINNATI, OHIO, Nov. 25, 1865.
I take pleasure in stating that the glycerin furnished by W. J. M. Gordon & Bro., of Cincinnati, has been used in wet meters by this Company during the past two years, and has proved very satisfactory thus far. Having resisted the action of frost, and not evaporated more than about six per cent. each year.
The standard for density being 15° Baume's scale.
H. I. MILLER, President.

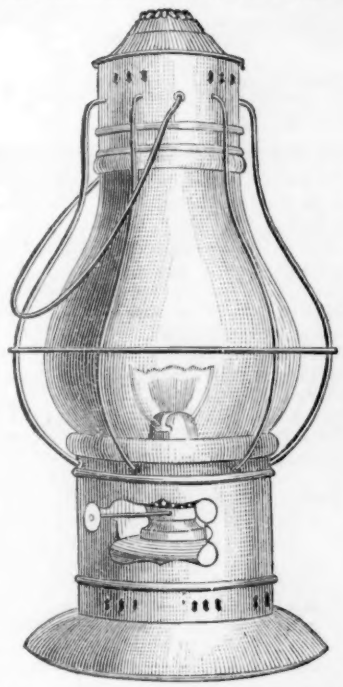
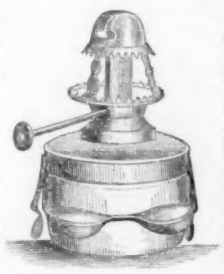
OFFICE GAS-LIGHT CO., BALTIMORE, Dec. 16, 1864.
MESSRS. W. J. M. GORDON & BRO.—Of the numerous fluids used by this Company in their gas-meters to prevent freezing, none have given the satisfaction of the Glycerin manufactured for that purpose by the Messrs. Gordon & Bro., of Cincinnati, Ohio. As Glycerin will withstand a temperature below anything in the latitude of Baltimore without congealing, and as it does not evaporate like the alcoholic mixtures, once filling a meter will last for years. Yours respectfully,
J. MORTON SAUNDERS, Engineer.
COLUMBUS O'DONNELL, President.

Glycerin for Printers' Rollers.
It is coming into general use for this purpose, as rollers will not dry and shrink as when made in the usual way.

OFFICE OF THE DAILY & DOLLAR WEEKLY TIMES, CINCINNATI, Nov. 27th, 1865.
I hereby certify that I have used the Glycerin manufactured by the Messrs. W. J. M. Gordon & Bro., of this city, in the manufacture of printing rollers, and find it a most valuable addition to the composition in general use. THOMAS F. WISTER, Pressman Times Office, Cincinnati, O.

November 29, 1865.
We have used the Glycerin manufactured by W. J. M. Gordon & Bro., of this city, for the last seven years. We find it in our line of business—printing playing cards, using colored inks to a great extent,—a very superior and indispensable article. We use about one-sixth quantity of it to the amount of molasses in making our rollers. We find it prevents them from shrinking up, and causes them to retain the desired "tack." We confidently recommend the article for the desired purposes. LONGLEY & BROTHER, Playing Card Manufacturers, Cincinnati, Ohio.
Glycerin is also used by the Cincinnati Commercial and Enquirer, to whom we refer.
We manufacture Glycerine of every quality used, and from our advantage in material we are enabled to sell it lower than any manufacturer in the country.
W. J. M. GORDON & BRO.,
MANUFACTURING CHEMISTS AND DRUGG'STS.
63] N. E. Cor. Central-ave. and 8th-st., Cincinnati, Ohio.

REED & COGSWELL,
CONSULTING ENGINERES,
117 Liberty Street, N. Y.

MANUFACTURERS OF
Slide & Oscillating, Stationary & Portable ENGINES,
Of all sizes. Also furnish all kinds of MACHINERY, TOOLS, AND GENERAL SUPPLY. Drawings of all kinds of Machinery executed to order.
JOHN A. REED. [63-86] W. B. COGSWELL.

JAS. O. SMITH & SONS,
MANUFACTURERS of LANTERNS,

81 FULTON, 55 GOLD, AND 90 ANN STREETS, N. Y.

We would especially direct attention to LATE IMPROVEMENTS in our No. 4 SMITH'S LANTERN, (for which we have applied for patent,) having a GLASS LAMP so constructed that the light passes through the bottom of the Lantern; also, the guards are so arranged as to dispense with soldering the top part of the guard to the trimming, obviating the difficulty that so frequently occurs in other lanterns of the guards melting off.
We are manufacturing at our factory, Middletown, Conn, MANY OTHER STYLES AND SIZES, which can be seen at our Show Rooms, 81 Fulton-st., New York. TRIMMINGS, etc., always on hand.
☞ The Trade are invited to call and examine our Stock.

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IMPORTER AND DEALER IN WATCHES AND JEWELRY, Agent for the AMERICAN WATCH. Also every variety of Swiss and English watches, AT THE LOWEST MARKET PRICES.
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Opppsite John Street. 62-85

FOR SALE.
ONE SET 13 INCH HYDRAULIC MAINS FOR Five Benches of three retorts each, with Dip, Bridge and Stand Pipes and Mouth Pieces complete. Apply at the Office of the
SALEM GAS-LIGHT CO.
62tf Salem, Mass.

ALBERT C. KUCK,

Manufacturer and Dealer in

COAL OIL

LAMPS,

CHIMNEYS,

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AND

CHANDELIERS

In all varieties and at manufacturers' prices.

AGENT FOR THE CELEBRATED

"Eureka" and "Nonpareil" Lanterns.

FRUIT JARS OF ALL KINDS AND SIZES.

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NEW YORK.

F. H. LOVELL & CO.,

Successors to Alfred Bliss & Co.

MANUFACTURER AND JOBBERS OF

KEROSENE

LAMPS

CHANDELIERS,

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AND

Lamp Trimmings

GENERALLY.

Station, Sugar House, Street and Coal Oil Lanterns.

No. 233 Pearl Street,

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Illustrated catalogues and price lists furnished on application.

NEW YORK LAMP COMPANY,

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We Would call especial attention to our recently improved

UNION BURNER,

which now burns without SMOKE OR ODOR, With Coal or Petroleum Oil makes the cheapest light known,

One Cent for Eight Hours.

The improved Union Burner without chimney, for a hand or portable night lamp is unrivalled.

Patented in the United States, England, France and Belgium.

NEW YORK LAMP CO.,

58 259 Pearl-street, near Fulton, New York.

Something New and Useful.

A POCKET LANTERN, which, when folded, occupies the space of a cigar case, and when open gives a good light. The most convenient article for any one who is liable to be out at night. Sample sent by mail on receipt of one dollar.

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The Aladdin No-Chimney Burner

GIVES A BRILLIANT LIGHT WITHOUT THE use of a chimney. Fits on to almost all kerosene lamps. It is the best no-chimney burner made, and no family should be without them. Samples sent by mail on receipt of 50 cents.

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152-176

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Manufacturers Agents for the Sale of

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☞ Leather and Rubber Belting supplied at usual rates. Circulars sent on application. 55-78

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Amalgamators, Stamp Mills,

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Foundries in San Francisco, Cal., and are prepared to make time contracts to erect Mills completed, on the premises in California, Nevada and other Territories.

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Unequalled for utilizing power—avoiding friction and wear,—rapidity of work, and facility of transportation and adjustment. Also, **Hitchcock's Adjustable Tubular Flue-cleaning Heater,** and other valuable Patents, for which license to manufacture will be granted on reasonable terms.

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Steam Pump Manufacturing Company,

MANUFACTURERS OF THE WOODWARD PATENT IMPROVED

SAFETY STEAM PUMP,

—Adapted for Mining and Fire Purposes—and

Steam, Water & Gas Fittings of All Kinds.

Also, Wholesale and Retail Dealers in WROUGHT IRON PIPE, BOILER TUBES, etc.,

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Also, Nursery and Night Lamps combined, a superior and cheap article for nursery or sick room; has a kettle, cup and pan, complete.

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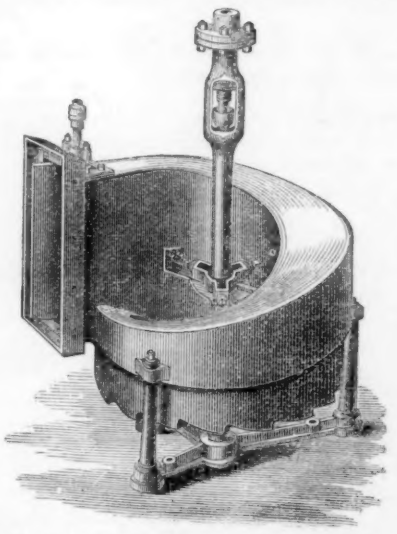
Helical Jonval Turbine Water Wheel,



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☞Articles of every description made to order, at short notice. (135

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It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals without scaling, than any other paint in use.

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This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

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375	36	94 00	22 00	116 00
450	84	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
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4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

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These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

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50	12	12 50
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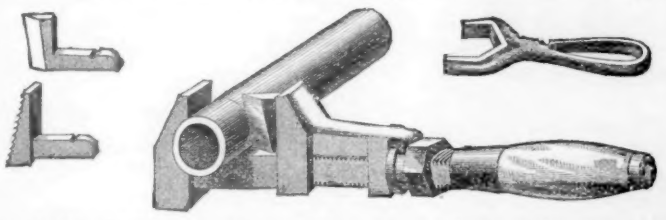

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Smith & Sayre Manufactnring Company.

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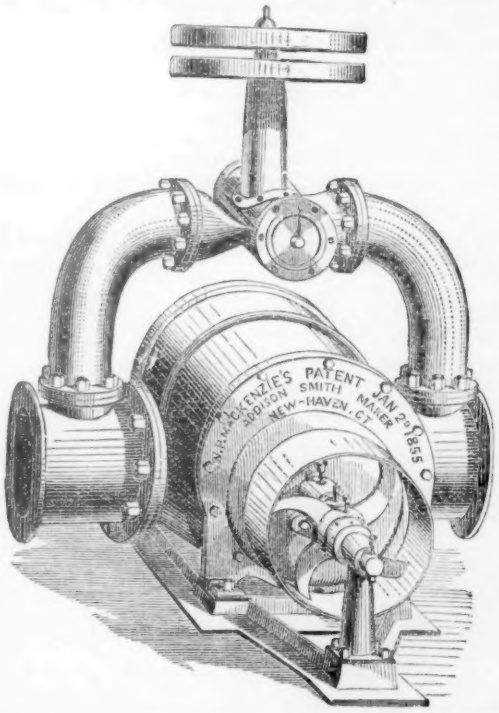
AND PATENT COMPENSATOR.



They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the production and illuminating power of the gas, and add very much to the durability of the retorts, either clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, durable, cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

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The Blower is a Force Blast machine, durably built, and can be driven with one-third the power required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 ons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. fuel. Address

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For Filling Wet Gas Meters, cheaper, in the long run, than water.

Six years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend the patent with perfect confidence.

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The process of reconstructing Slate Stone from a disintegrated state was

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It is a combination of

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A mastic—it adapts itself to every shape and slope. Noncombustible, impervious, non-expansive, and undecaying.

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The only roofing material ever discovered that will resist the action of the elements as long as the structure it protects. Being susceptible of little, if any wear, from exposure, and

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Manufacturer of all kinds of GAS and WATER PIPE, BRANCHES, CONNECTIONS, T's, ELBOWS, and ALL CASTINGS USED AT GAS AND WATER WORKS.

I offer special inducements to parties wishing to purchase, my Pipe is Smooth, regular in weights, and cast vertically.

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☞ SEND FOR CIRCULAR AND PRICE LIST. ☜

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Commander, Winslow Loveland.

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San Salvador,	..	"	13	San Salvador	..	"	9
San Jacinto,	..	"	20	San Jacinto	..	"	16
San Salvador,	..	"	27	San Salvador,	..	"	23

Returning, leave Savannah every Saturday at 3 o'clock, P. M.

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Trains leave New York, from the foot of Chambers Street, N. R., via the Pavonia Ferry, at 7.45 a. m., Day Express, for Rochester Buffalo, Salamanca Dunkirk and the West. Connects at Buffalo with Lake Shore and Grand Trunk R.R., and at Salamanca with Atlantic & Great Western R.R. 8·30 a. m. milk and way train daily, Otisville; 10 a. m. Express Mail for Buffalo, Salamanca and Dunkirk, connecting with the Lake Shore and Atlantic & Great Western R. R.; 3 p. m. way train for Middletown. 4.30 p. m. way train for Port Jervis, Newburgh and Warwic. 5.30 p. m. Night Express, for Rochester, Buffalo, Salamanca Dunkirk, and the West. 7 p. m. Lightning Express, daily, for Rochester Buffalo, Salamanca. Dunkirk and West. Connects at Buffalo with Lake Shore and Grand Trunk R. R., and at Salamanca with Atlantic and Great Western R.R. 8 p. m. Emigrant train for Buffalo, Salamanca, Dunkirk and West. Trains leave Jersey City for Patterson at 6·45, 7.45, *8·30, 9·15, 10 and 11·45 a. m.; 1·45, 3, *4.15, 4·30, 5.15, 5·30, 6, 6·30, *8 and 11 p. m. Those marked thus * run daily.

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For Washington, 8* and 10,00* a. m. and 6*, 7* p. m. and 12* Midnight. Sleeping cars attached to 7 p. m. Express trains marked thus *

For Newark, 6, 6.30, 7.30, 8.20, 9, 10, 11, and 11.40 a. m., 12 m, 1, 2, 3, 3.30, 4.10, 4.30, 5, 5.10, 5.20, 5.40, 6.20, 7.10, 8.20, 10, and 12 p. m —Sunday 6 p. m. only.

For Elizabeth, 6, 7, 8 20, and 10 and 11.40 a. m.; 12 m; 1, 2, 3, 3.30, 4,10, 4.30, 5, 5,10, 5.40, 6.10, 7.10, 8.20, 10 and 12 p. m.

For Rahway, *6 (stopping at Market Street only, Newark) 7, and 10 a. m. and 12, 2, 3.30, 4.10, 4.30, 5.10, 5.40, 6.20, 7.10, and 12 p. m.—Sunday, 6 p. m.

For New Brunswick, 7, 8, and 10, a. m.; 12 m.; 4, 4,10, 5.10, 6, 6.20 and 12 p. m.

For Millstone, at 7 a. m.; 12 m; 2.15, and 4.10 p. m.

On Sundays trains leave New York for Philadelphia and intermediate stations at 6 p. m. and for Washington, 7,00 p. m.

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Secured with the most approved

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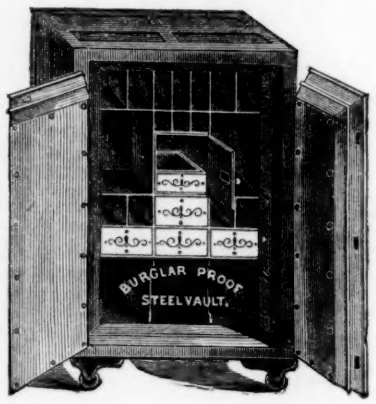
The Best Fire and Burglar Proof Safe IN THE WORLD!



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1	14	10	10	$80	1	22	32	16	$275
2	16	12	11	90	2	34	24	16	300
3	20	15	12½	120	2½	32	33	16	400
4	21½	21½	13	150	3	38	24	16	350
5	26	18	13	220	4	44	24	16	400
6	22½	26	14	250	5	44	32	17	500
7	26	21	14	240	5½	40	38	17	525
8	29	24	14½	300	6	50	32	17	550
9	32	22	14½	300	7	50	88	17	600
10	32	27	14½	350	8	56	38	18	750
					9	56	44	18	850
					10	64	51	19	1000

NOTICE—Parties ordering Safes can have any Lock they desire.

Jewelers' and Banker's Safes Made to Order, Lined with Hardened Steel or Chilled Iron.

HOUSE AND PLATE SAFES.

☞ This CELEBRATED SAFE has been tested in all the Large Fires during the past 31 years, including the great fire in New York City A. D. 1835, and the thousands of certificates from Merchants, Bankers, and Mechanics of all trades, that have been given to this, the ONLY TRUE "SALAMANDER," renders it useless for the subscriber to multiply words in its favor, as full twenty-five thousand of the Salamander Safes have been manufactured and sold in the United States; and in almost every large fire that has taken place during the last thirty years, these safes have been subjected to the severest tests, and NOT ONE of the genuine Salamanders has ever been destroyed.

☞ A good assortment of New and Second-hand Safes constantly on hand

O. C. QUIRK.

155 Warehouse No. 28 Liberty Street.

JOSEPH NASON & CO.,

No. 61 Beekman street, corner of Gold,

NEW YORK.

Manufacturers of WROUGHT IRON PIPES and Fittings for Steam, Gas and Water, Boiler Flues, Steam Boilers, Coils, Heaters, Evaporators, Pumps, Ventilating Machinery, and Apparatus for Warming Buildings by Steam and Hot Water.

OIL TUBING, CAST IRON DRIVING PIPE,

Boring Tools, Oil Pumps, Sand Pumps, Stuffing Boxes, Tongs, Clamps, Swivels, Joints, &c. 131

BIRD, PERKINS & JOB.,

(Formerly J. P. Melledge & Co.,)

General Commission Merchants,

And Importers of

PROVINCIAL COAL,

For Gas, Steam and Iron Manufactures.

39 India Wharf,..... .....Boston.

SAM'L T. BIRD, JAMES D. PERKINS, DANIEL W. JOB. [134

Represented in New York by GEORGE H. BREWER, No. 104 Wall Street.

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 605 Sixth Ave., New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,

137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

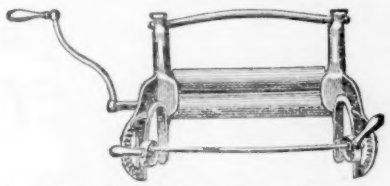
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it.

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

13 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

C, GEFRORER,

MANUFACTURER OF

Gas Heating Apparatus

OF EVERY DESCRIPTION,

Gas Burners, &c.

No. 529 COMMERCE STREET,

PHILADELPHIA, PA.

Burners for Wood, Coal Oil and Water Gas.

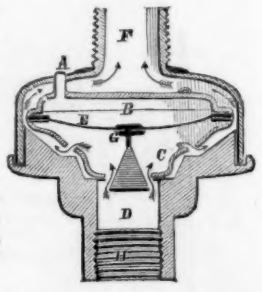
Gas and Lava Burner Tips

65 *Constantly on Hand.*

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 28 Liberty street, where they can see the operation by pressure guage and test meters]

M. L CALLENDER, Agent
Office, 22 PINE STREET.

JOSEPH LEES, San Francisco, Agent for California and Oregon.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

West Twenty Second Street, New York. Arch and Twenty Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore at their old Establishmen, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by
HARRIS & BRO., No 1117 Cherry st., Philadelphia.

Messrs. Harris & Brother,
Philadelphia Gas Works, February 14, 1857.

Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality—the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer;

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

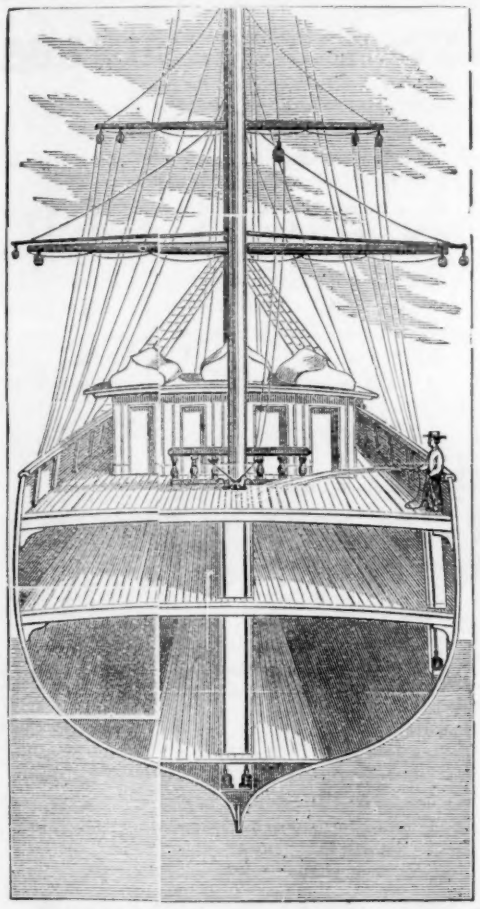
This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entir8 satisfaction in point of wokmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments;but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Georgia.

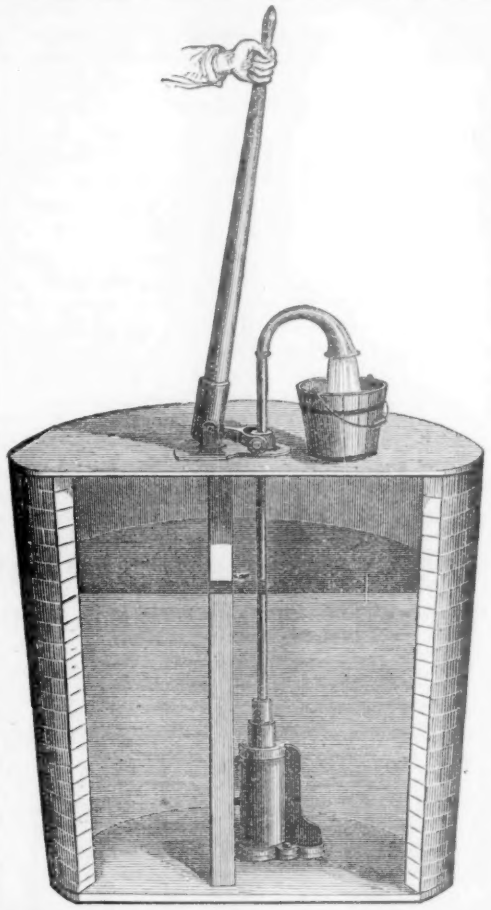
Messrs. Harris & Brother, Philadelphia.
Philadelphia, March 4, 1858.

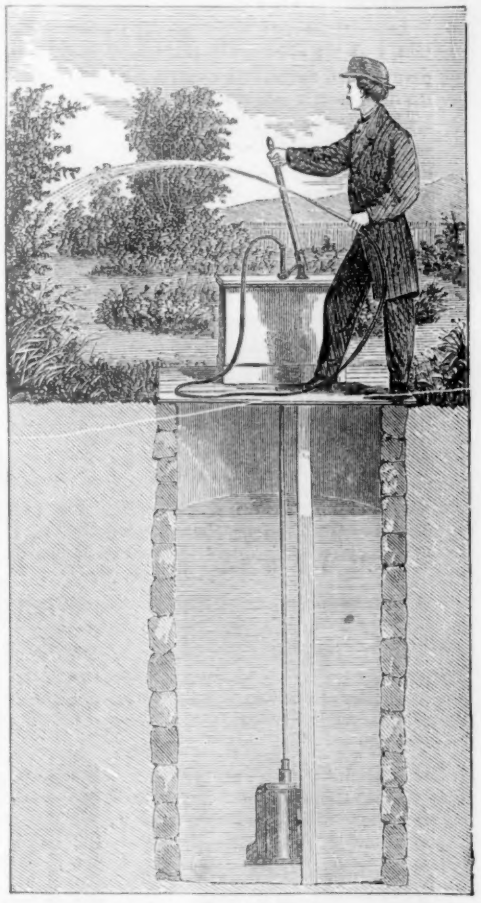
Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanshipall we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother.
March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory, and take pleasure in expressing my opinion to their or e:tness. On several occasions I have taken your meters apart, and found the material used in the manufacture of the same, to be as fine quality as is used in those imported from Europe, or made by any of the manufactur in the United States. Respectfully Yours, GEORGE WIEGAND, Inspector of Gas Fittings, Philadelphia







AMERICAN PUMP MANUFACTURING COMPANY,

DEPOT NO. 40 DEY STREET, NEW YORK.

A. B. VAN OLINDA, Secretary. C. V. B. OSTRANDER, Treasurer. E. BEADLESTON, President.

STATE AND COUNTY RIGHTS FOR SALE.

Pumps, completed, will be delivered from the manufactory of the Company, to parties purchasing rights at a royalty of One Dollar each.

THE PATENT SUBMERGED PUMP.

This valuable Invention, now first introduced, will, it is believed, supersede all classes for any purpose in use at the present time.

ITS ADVANTAGES.

FIRST.—SIMPLICITY. The entire pump is composed of but six parts, all of cast iron, which can be put together by any mechanic.

SECOND.—DURABILITY. From the fact that it is always submerged, it is perfectly lubricated, and requires no packing As no water can remain in the pipe when not in motion, there is no danger of freezing.

THIRD.—CAPACITY. It is contended that, for the power applied, this Pump excels all others. The No. 1 (the smallest size,) of this Pump, with the power of one hand, has a capacity of thirty gallons per minute, and will throw a stream seventy feet in the air.

FOURTH.—CHEAPNESS. For economy, this Pump surpasses all others, its first cost being about one-third less than that of other Pumps of the same capacity, and being much less both in size and weight, there is a great saving in transportation.

ITS USES.

FIRST.—For a House Pump; the smallest size of the patent Submerged Pump is sufficient for all family purposes. Placed in a well or cistern, water may be conveyed to every room in a common sized house.

SECOND.—For a Farm Pump; for all purposes connected with irrigating, watering stock, etc., etc. This Pump can be placed in running streams, ponds, bayous, etc., and water conveyed to any required distance.

THIRD.—For a Ship Pump; Any ship owner or captain, with short experience in the use of this Pump, will give his unqualified approval for ship purposes, either to be used as a bilge pump simply, or for washing decks, etc. From its simplicity, as a bilge Pump it will be found entirely free from choking, and will clear grain, dirt, stones, etc., with ease.

FOURTH.—For a Factory Pump, or for air in Oil Wells, for Breweries or for pumping acids, hot liquors, etc., it is invaluable. It cannot be affected by any liquid.

FIFTH.—To all Directors and Officers connected with mining interests, the PATENT SUBMERGED PUMP presents great advantages.

The experience of the last five years have clearly proved at what great expense, both in first cost and freight, it has been necessary to be at to secure the proper means of expelling water from the mines, quarries, etc. With this Pump an immense saving is effected in both instances, as in first cost it is much less than other Pumps of the same capacity and power.

Its principle is that of a Double-acting Force Pump, with a heavy double-acting piston cast in one piece, and a double-acting iron valve within the same, without the use of leather valves or any packing whatever.

DIRECTIONS FOR ADJUSTING PUMPS.

1st. Find the exact measurement of the well or cistern from the extreme bottom to the top or curb, after which make such an allowance as may be required, above the curb or top, as will accommodate the sized vessel required to be used, and in respect to the quantity of pipe required, always deducting for the length of the Pump and the space between the bottom and the Pump. 2d. Provide a plank, to which the Pump must be secured, not less than seven inches wide by two or two and a half inches thick, which should reach from the bottom to the top of the well or cistern, always placing the plank on the side of the well or cistern. 3d. Before putting the plank into a well or cistern, fit and bolt the Pump to the plank, and screw the pipe firmly in, taking care to have the Pump not less than one foot from the bottom of a well, nor less than six inches from the bottom of a cistern. Yet, if the water be six feet deep in a well, then adjust the Pump three feet from the bottom, and in like proportion as the case will permit, always being governed by the depth of water in the well, and always observing the necessity of securing the plank at the bottom of the curb, by braces across the well, and standing perfectly plumb and solid under the platform orcovering of the well, when the fulcrum can be fastened to the platform, taking care to give the pipe free action when in motion.

Improvements in the Microscope.

Amongst the more important discoveries in connection with the application of the Microscope to the purposes of anatomical research, we must allude to the little contrivence devised by Messrs. Powell & Lealand, by means of which the binocular miscroscope may be employed with the very highest objectives. Hitherto only such powers as the 1-inch, 1-2-inch, and 2-3-inch could be used in the production of stereoscopic effect; but now the binocular microscope ceases to be a toy, and the most elaborate histological inquires can be conducted with it. Messrs. Powell & Lealand's consist simply of two prisms, one of which is triangular and the other somewhat triangular in section; by means of which the rays proceeding from the object are sent, partly by reflection, and partly by refraction, to both the observers eyes. The new addition to the microscope is cheap, and, since it occupies the drawer into which the ordinary Wenham's prism is fitted, it should be attached to every working instrument. Another improvement connected with microscopy consists in the employment of pure tin in the preparation of "cells" in which objects are mounted. The new cells, as constructed by Charles Collins, of Great Fitchfield-st, are less costly and more easily manipulated than those of glass and answer the purpose equally as well.—*London Lancet.*

—Lead and zinc veins have been traced through several counties in Tennessee. One vein from Elizabethton, in Carter County, through New Market Valley, and into Anderson County, and continuing to Blount county Powell's Valley. Lead and zinc are associated together, and are found embodied in lime-stone strata.

Bone-Black.—In Paris alone, 11,000,000 Kilogrammes of bones are annually used for decolorizing purposes in the refining of sugar. The preparation of bone-black is simple in principal. It consists in placing in cast iron pots or retorts about 50 lbs. of broken boiled bones, that is, bones which have been deprived of fat. These pots are piled in a furnace, where they ore submitted to a gradually rising temperature during 54 hours, such as will completely decompose the organic matter, but not so high as to fuse the bones.

Magenta.—The tinting power of the salts of Magenta seem incrediole. One grain in a million times its weight of water gives a pure red; in ten millions, a rose pink; in twenty millions, a decided blush; and even in fifty millions, in which is discovered an evident glow.

C. GEFRORER,

MANUFACTURER OF GAS BURNERS,

529 Commerce Street, Philadelphia, Pa.

Burners for Wood, Coal Oil, and Water Gas. Brass and Lava Burner Tips Constantly on Hand.

GROVESTEIN & CO.,

PIANO FORTE MANUFACTURERS,

499 BROADWAY, NEW YORK.

THE ATTENTION of the public and the trade is invited to our New Scale, Seven Octave, Rosewood Piano-Fortes, which for volume and purity of tone are unrivalled by any that have hitherto offered in this market. They contain all the modern improvements, French Grand Action, Harp Pedal, Iron Frame, Over-strung Bass, etc., and each instrument, being made under the supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"
RECEIVED THE HIGHEST PREMIUM AT THE
CELEBRATED WORLD'S FAIR.

Where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvement we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1,	Seven Octave,	round	corners,	Rosewood, Plain Case, $275
No. 2,	"	"	"	Heavy Moulding 300
No. 3,	"	"	"	Louis XIV style 325

a fac-simile of the accompanying cut.

TERMS—Net Cash, in current funds. Descriptive circular sent free on application.